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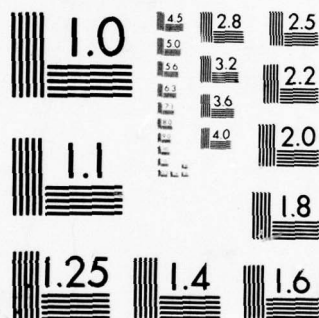
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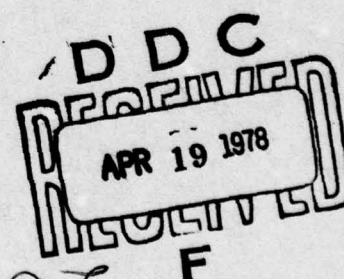
TECHNICAL NOTE

MISSILE-X PROGRAM  
LOGISTIC ELEMENT MANAGEMENT PLAN  
FOR  
NUCLEAR HARDNESS AND SURVIVABILITY INTERFACE LEM

15 August 1977

Prepared for  
DEPARTMENT OF THE AIR FORCE  
SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)  
ICBM Program Office

Under Contract F04606-76-A-0087-R901



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FOR  
NUCLEAR HARDNESS AND SURVIVABILITY INTERFACE LEM.

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Technical notes

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15 Aug 1977

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One of 12 LEM Plans  
Prepared for

DEPARTMENT OF THE AIR FORCE  
SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)  
ICBM Program Office

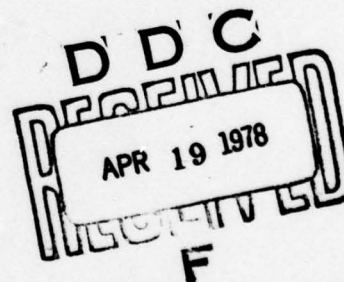
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**MISSILE-X PROGRAM  
LOGISTIC ELEMENT MANAGEMENT PLAN  
FOR  
NUCLEAR HARDNESS AND  
SURVIVABILITY INTERFACE LEM**

15 August 1977



**SPACE AND MISSILE SYSTEMS ORGANIZATION  
AIR FORCE SYSTEMS COMMAND**

**Prepared by  
Logistics (MNL)  
Deputy for Intercontinental Ballistic Missiles**

**MISSILE-X PROGRAM  
LOGISTIC ELEMENT MANAGEMENT PLAN  
FOR  
NUCLEAR HARDNESS AND  
SURVIVABILITY INTERFACE LEM**

15 August 1977



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## FOREWORD

This Nuclear Hardness and Survivability (NH&S) Interface Logistic Element Management Plan is one of twelve plans supplementing the guidance and direction for the Integrated Logistic Support (ILS) program as delineated in the Missile-X Integrated Logistic Support Plan (ILSP). Whereas the ILSP provides general guidance and direction for integrating all logistic elements into the overall program requirements, this plan treats the specific actions, milestones, and coordination efforts of the Logistic Element Manager for the NH&S Interface. It has been written to assist him in fulfilling his responsibilities toward achieving the ILS objectives of the MX Program.

The majority of information contained in Sections 1 through 4 herein is common to all plans. Sections 5 and 6 present information pertinent to the NH&S-LEM's efforts.

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# 1 INTRODUCTION

## 1.1 BACKGROUND

In accordance with DoD Directive 4100.35, the promulgating authority of AFR 800-8, and the guidance provided by AFP 800-7, the MX Program Office has implemented an Integrated Logistic Support program for the MX Weapon System. The ILS program, as delineated in the Integrated Logistic Support Plan (ILSP), is intended to ensure that the weapon system is designed with due consideration given to its supportability and that the required support will be attained within an affordable, minimum life cycle cost.

For the MX System, logistic elements – areas of support activity that collectively comprise the management concept of ILS – have been defined. These are:

- Maintainability Interface (M)
- Reliability Interface (R)
- Nuclear Hardness and Survivability Interface (NH&S)
- Maintenance Planning (MP)
- Support and Test Equipment (SE)
- Supply Support (SS)
- Transportation and Packaging (T&P)
- Technical Data (TD)
- Support Facilities (SF)
- Personnel and Training (P&T)
- Logistic Support Management Information (LSMI)
- Logistic Support Resource Funds (LSRF)

For each area of support activity, the MX Program Office has designated a Logistic Element Manager (LEM) responsible for managing the accomplishment of the tasks associated with his element.



## 1.2 PURPOSE

→ This document is a Logistic Element Management Plan for the Nuclear Hardness and Survivability Interface element. It has been written to provide the NH&S-LEM with guidance in managing the NH&S Interface element and ensuring the integration of ILS NH&S requirements into the system design process. This plan, and those developed for the other eleven logistic elements, will become supplementary documents to the ILSP. ↗

## 1.3 MX PROGRAM

The MX Program has been implemented to provide the technology base for the development of an improved land-based strategic missile weapon system. Efforts are being directed toward the design, development, and deployment of an ICBM system within one of two nuclear hardened, multiple aim point (MAP) basing alternatives. The two currently favored basing options are the buried-trench and shelter-based weapon systems.

Full scale development (FSD) of the MX Weapon System is divided into two major efforts: missile development, including the missile and canister; and weapon system development, which includes the MAP basing hardware, software, and facilities, and the integration of the missile/canister with these equipments and facilities.

## 2 SCOPE

This Logistic Element Management Plan structures the NH&S Interface logistic requirements of the ILSP into identifiable responsibilities of the NH&S-LEM, and delineates the tasks associated with these responsibilities. The plan is applicable to the FSD phase of the MX Weapon System, with overlap to the preceding validation and system definition phases and succeeding production/deployment phases. The plan applies to all elements of the weapon system, including the air vehicle, support functions, and the selected basing option. In addition, this plan:

- a. Provides an overview of the MX Program management concept, and the LEMs' position in the management structure.
- b. Describes the ILS program and the function of the NH&S-LEM within that program.
- c. Describes the participation of the NH&S-LEM in the ILS Management Information System.
- d. Indicates the interdependencies among tasks and the coordination among all members of the Integrated Logistic Support Management Team (ILSMT), the project element officers (PEOs), and systems engineering.
- e. Presents a basic schedule for the performance of tasks by relating each task to the time frame of major program events.
- f. Indicates the interrelationships of the NH&S-LEM with the remaining logistic elements.

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## REFERENCE DOCUMENTS

The following document listing is provided as a reference source relating to the implementation of an ILS program and the NH&S Interface logistic element.

DoD Directive 4100.35	Development of Integrated Logistic Support for Systems/Equipment, 1 October 1970
DoD 4100.35G	Integrated Logistic Support Planning Guide for DoD Systems and Equipment, 15 October 1968
AFR 80-38	Management of the Air Force Survivability Program, 6 September 1973
AFR 800-8	Integrated Logistic Support (ILS) Program for Systems and Equipment, 27 July 1972
AFP 800-7	Integrated Logistic Support Implementation Guide for DoD Systems and Equipments, March 1972
AFLC Supplement to AFR 80-38	Management of the Air Force Survivability Program, 12 July 1974
AFSC Supplement to AFR 80-38	Management of the Air Force Survivability Program, 23 October 1974
OO-ALC MME-7604	Summary of Minuteman Hardness Maintenance Experience, 6 December 1976
SAMSO Supplement to AFR 800-8	Integrated Logistic Support (ILS) Program for Systems and Equipment, 7 September 1976
ICBM PO ED 77-4	ICBM Program Office Engineering Directive for the Nuclear Hardness and Survivability Program for the MX Weapon System, 3 May 1977
ICBM PO ED 77-6	System Requirements Analysis Programs for the MX Weapon System, 24 May 1977
ICBM PO ED-77-3	ICBM Program Office Engineering Directive for the Integrated Test Plan for MX Weapon System, 22 June 1977
ILSP	Missile-X Integrated Logistic Support Plan, June 1977



**PO Manual**

**SAMSO/MNL  
Publication**

**ICBM PO Project Officers' Manual, 1 July 1976**

**ILS Management Information System Report,  
31 August 1977**

## PROGRAM MANAGEMENT

Management of the MX Weapon System Program is the responsibility of the ICBM Program Office. The Program Manager has the overall responsibility for acquisition and integration management of the program, and is supported by the following Directorates within the ICBM Program Office:

Logistics

Engineering

System Acquisition Management Support

Procurement and Production

Deployment

Program Control

The ICBM Program Office comprises a team of Air Force and contractor personnel. That office operates with a functionally decentralized organizational structure, which has resulted in the implementation of the Project Element Management System. In this system, the program is divided into a series of discrete, functional elements, each managed as an entity by a designated Project Element Officer responsible for monitoring the technical, cost, and schedule performance of one or more MX associate contractors. No prime contractor will be designated for the MX Program. Rather, the ICBM Program Office will function as the system integrator.

### 4.1 ILS PROGRAM ORGANIZATION

#### 4.1.1 Deputy Program Manager for Logistics

The Deputy Program Manager for Logistics (DPML) was assigned from HQ AFLC with the concurrence of the MX Program Manager, and serves as the focal point for MX logistics management. The DPML and his organization are an integral part of



the ICBM Program Office and form the Directorate of Logistics (MNL). Within the MX Program, it is the responsibility of the DPML to assure that:

- a. Continuous attention is given to logistic support posture and costs throughout the acquisition process.
- b. Tradeoff studies affecting system design are evaluated to determine their impact on supportability, life cycle cost, and operational requirements.
- c. All objectives of ILS are achieved for the MX Weapon System.

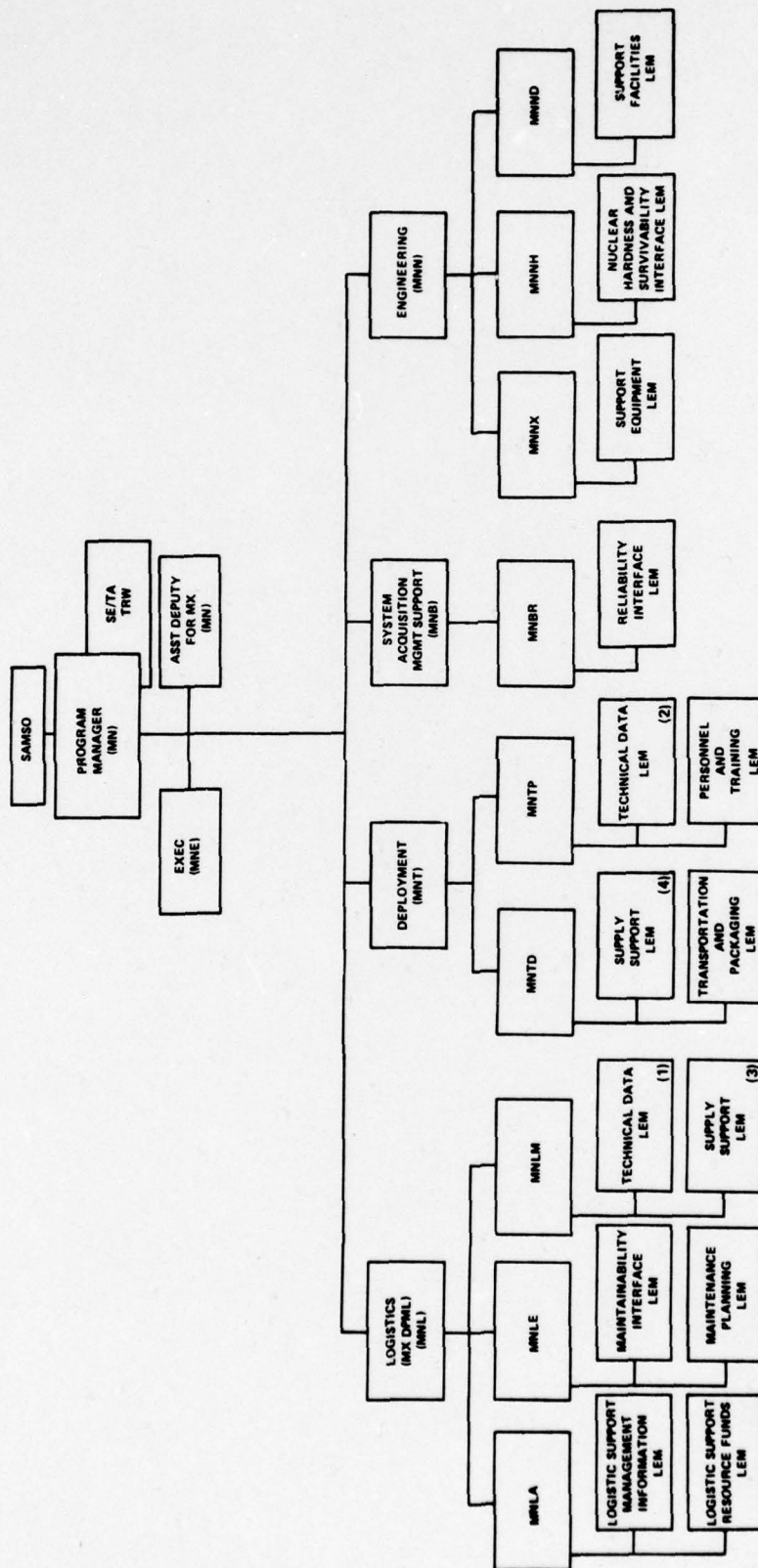
The DPML will draw upon the support of the designated logistic element managers to obtain timely contributions to those system design and support decisions which affect logistic support costs and effectiveness throughout the life of the system.

#### **4.1.2 Logistic Element Managers**

As discussed in paragraph 4, the Program Office operates with a functionally decentralized organization structure. This decentralization has positioned ILS elements (as defined by AFR 800-8) outside of the Logistics Directorate, in company with those engineering design elements (e.g., Reliability) normally external to the logistics organization. Logistic element managers have been designated within each functional logistic-related area. In addition, the Technical Data and Supply Support elements are further separated into subelements to gain maximum benefits from the decentralized organizational structure. The elements, by Directorate, are shown in Figure 4-1.

The manager for each element is the single point of contact for the DPML in the management of all logistic integration aspects of the assigned element. The LEM assures that the tasks associated with his element, as defined within this Logistic Element Management Plan, are accomplished. He provides liaison and coordination among the other logistic element managers as required for the achievement of integrated logistic support. He further assures that all relevant ILS data are collected, analyzed, reported, and disseminated, as appropriate, for his element.

Each LEM also plays a key role in supporting the Program Office's function as integrating agency of all associate contractor activities. The NH&S-LEM supports systems engineering and the PEOs by providing the management assistance needed to identify the contractual requirements relative to his element. In so doing,



SUBELEMENTS:  
 (1) Engineering Data  
 (2) Technical Orders  
 (3) Operational  
 (4) Preparational

Figure 4-1. MX Program Logistic Element Managers

he assures that a system integration approach is used in determining the requirements for each associate contractor. Due to the large number of associates involved, a significant coordination effort will be required by the LEM within his logistic element to maintain cognizance of the activities that impact on logistics.

Each LEM is a member of the Integrated Logistic Support Management Team, and through active participation as a team member he supports the DPML in managing the accomplishment of the Program Office's acquisition logistics tasks.

It is through the exchange of information at ILSMT meetings and the inter-relationships of LEMs that the DPML will acquire the program information necessary to assure the integration of logistic support elements into the total program requirements.

#### 4.2 ILS MANAGEMENT INFORMATION SYSTEM

The ILS Management Information System was developed to assist the DPML and all logistic element managers in their efforts to achieve the logistic objectives of the MX Weapon System. Management and direction of the information system's activities are the responsibility of the DPML. This responsibility is discharged primarily through his position as chairman of the ILSMT and of technical interchange meetings.

Successful implementation of the ILS MIS depends on each LEM's accomplishment of the tasks delineated in his LEM plan, through fulfilling his reporting responsibilities, and through active participation in the ILSMT.

The ILS Management Information System Report dated 31 August 1977 provides a complete description of the ILS MIS and the LEMs' role in implementing the system. Figure 4-2 depicts the information flow of the ILS MIS, and will serve as an aid in understanding the data input/output and coordination activities of the NH&S-LEM as defined in Sections 5 and 6 of this plan.

In general, much of the management information will involve estimates, or other planning data in which the quality of the data used will vary over some acceptable range. The criteria provided for use by the LEMs in describing the relative quality of MIS data are presented in tables within the Integrated Logistic Support Management Information System Report. Assistance to the LEMs for participating in the ILS MIS, as both contributor and user, will be provided by the Logistic Support Management Information LEM.



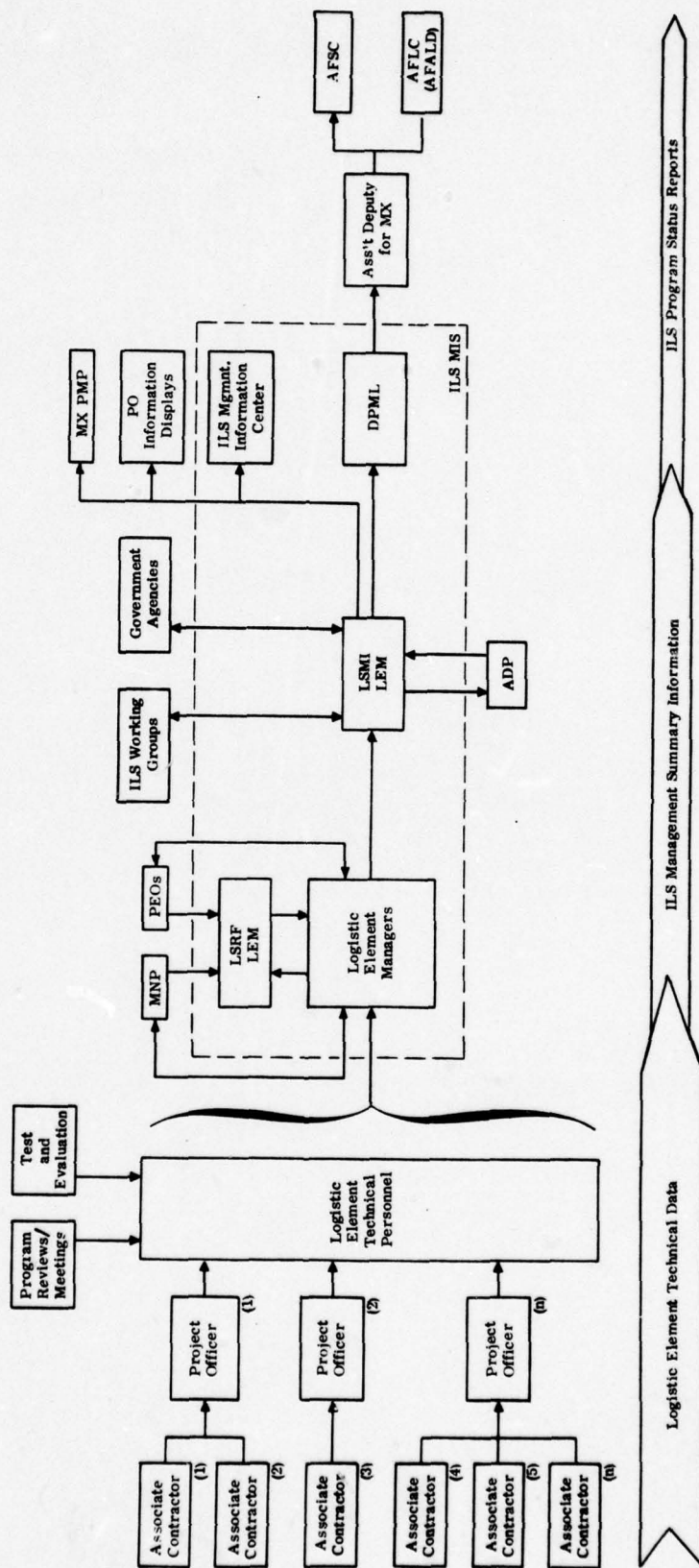


Figure 4-2. Information Flow of the ILS MIS

A typical schedule showing program events for the logistic element addressed in this plan is shown in Appendix C. This schedule depicts the general type of information required as input to the management information system for tracking the progress of each associate contractor in fulfilling the requirements for a specific logistic element. This type of information is also a prerequisite to the LEM's effort of tailoring the task schedule shown in Table 6-1 to each associate contractor's unique development activities.



## 5 GENERAL REQUIREMENTS

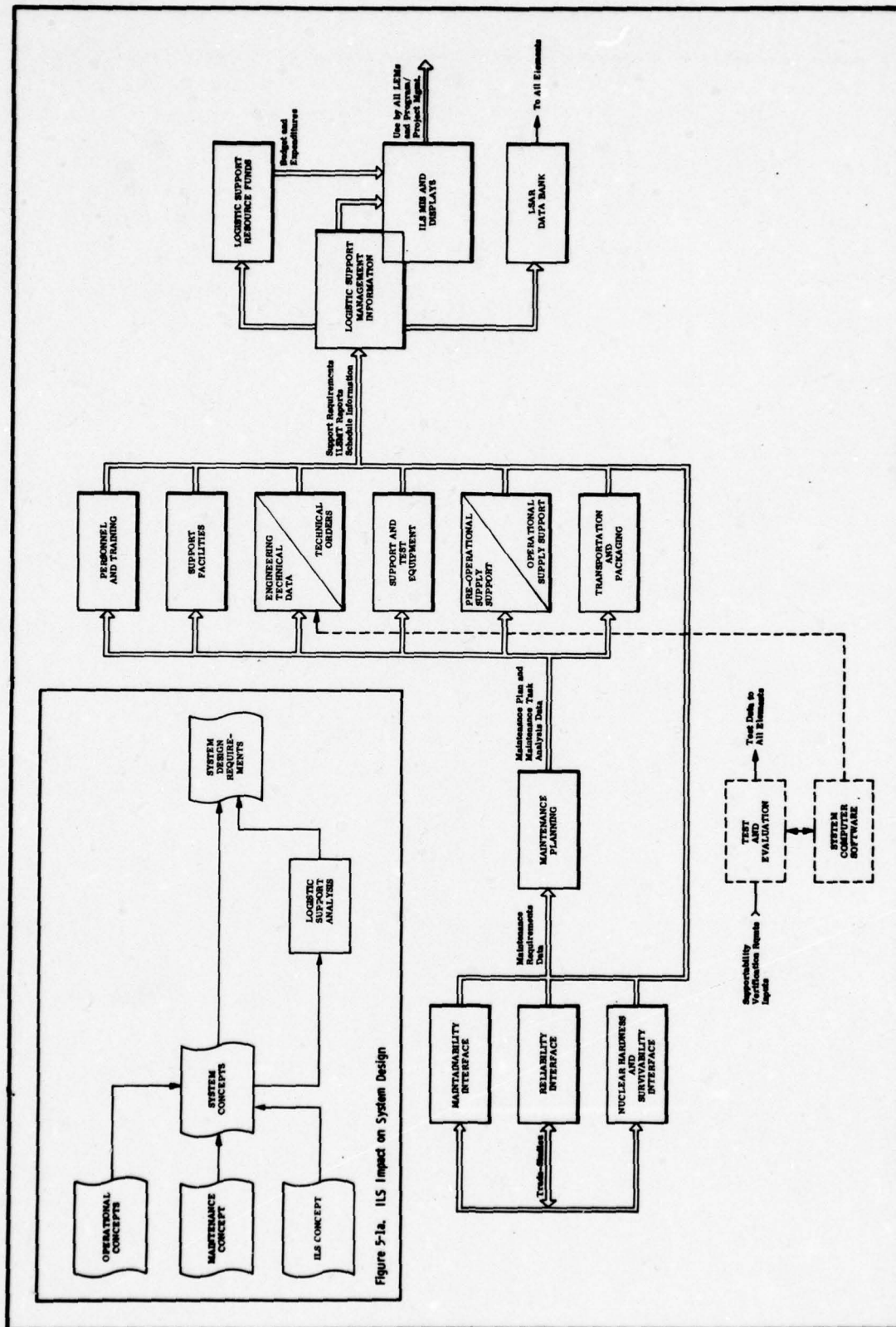
### 5.1 INTEGRATED LOGISTIC SUPPORT PROGRAM

Integrated Logistic Support is a concept that encompasses the total and timely support of a system/equipment, within acceptable life cycle cost criteria, for the duration of its useful life. Realization of this concept is achieved through planning and analysis tasks for the subsequent procurement of all required support as part of the total acquisition process.

An ILS program has been implemented for the MX Weapon System to assure that the ILS concept impacts the system design process in a manner that will improve supportability and control O&S costs. Within the ILS program, logistic elements have been identified (see paragraph 1.1). These elements are areas of support activity which, when collectively considered, provide the basis for the acquisition of the human, material, and financial resources required to maintain a system in an acceptable state of operational readiness within affordable cost criteria.

Essentials of the ILS program include the analysis and definition of quantitative and qualitative logistic support requirements; the prediction of logistic support costs; and the performance of tradeoff studies and evaluations. The responsibility for performance of these efforts rests with the ICBM Program Office and its supporting directorates. However, the responsibility for monitoring and assuring the accomplishment of these efforts has been assigned to the logistic element managers. Each Logistic Element Management Plan delineates the detailed areas of responsibility for a specific LEM.

Figure 5-1 depicts the information flow among the various LEMs during the performance of their ILS efforts. While the information flow will primarily be in the direction indicated by the arrows in that diagram, situations will arise where information must be passed in both directions. Additionally, the information flow might be influenced by variations in logistic information requirements among the configuration end items. Figure 5-1a (inset in Figure 5-1) indicates that the impact of the ILS concept on the system design is achieved through the logistic support analysis efforts.



**Figure 5-1. Primary Interface Relationships of Logistic Elements**

## 5.2 NUCLEAR HARDNESS AND SURVIVABILITY INTERFACE LOGISTIC ELEMENT

The MX Weapon System has a requirement to withstand the effects of a hostile nuclear environment. The system will be designed with this hardness capability. The logistic aspects of nuclear hardness and survivability (NH&S) activities during validation and full scale development (FSD) consist of the planning and preparation necessary to provide the using and supporting commands with the capability to assure that the level of hardness inherent in the basic system design is not inadvertently degraded as a result of routine operational and maintenance functions, and that unacceptable levels of hardness degradation do not occur as a result of the stresses of operational life, such as aging, corrosion, etc. Implementation of this NH&S assurance function during deployment is defined as "hardness maintenance" in AFSC Supplement 1 to AFR 80-38. Hardness maintenance consists of four basic capabilities:

- a. Redesign hardened equipment
- b. Reprovision hardened parts
- c. Repair hardened equipment
- d. Survey hardness performance.

The latter capability is referred to as "hardness surveillance" and consists of periodic sample tests and inspections of fielded hardware to detect hardness degradations that would not be otherwise identified during routine functional testing.

As an ILS interface element, NH&S impacts the design tradeoff process as well as other ILS elements, such as Support and Test Equipment (SE), Technical Data (TD), and Personnel and Training (P&T). The NH&S interface element includes those activities involved in assuring that the logistic impact of NH&S requirements is identified, evaluated, and documented for feedback into the design tradeoff process. Efforts that develop information applicable to this activity include failure mode analysis, optimum repair level analysis, maintenance task analysis, and provisioning analysis.

The NH&S-LEM will participate in a series of tasks to ensure that ILS requirements are included in system/equipment NH&S criteria, and will track the progress being made toward achieving those supportability requirements. He will also develop a schedule of his tasks for each associate contractor involved in FSD.



In the performance of the tasks delineated herein, the NH&S-LEM will be required to coordinate with PEOs, OPRs, NH&S engineering, and other LEMs. In areas such as test and evaluation and software support that do not have LEM representation, coordination will be required with POs. His membership in the ILSMT will also be required.

## NH&S-LEM MANAGEMENT RESPONSIBILITIES AND TASKS

### 6.1 RESPONSIBILITIES

The Nuclear Hardness and Survivability Interface LEM assists the Deputy Program Manager for Logistics in assuring that the NH&S aspects of the ILS program are achieved. He verifies that NH&S Interface considerations are made an integral part of the system/equipment design process. These responsibilities include:

- a. Coordinating the NH&S element of logistics for the MX Program.
- b. Serving as the NH&S point of contact for MX logistic support analysis (LSA) activities.
- c. Establishing lines of communication with each PEO, and providing assistance in all matters pertaining to the logistic aspects of NH&S.
- d. Providing NH&S data inputs to the ILS Management Information System.
- e. Acting as the NH&S representative to the ILSMT.
- f. Maintaining cognizance of all contractor activities related to the logistic aspects of NH&S.

### 6.2 MANAGEMENT TASKS

The scope of each task identified in this plan must be tailored by the NH&S-LEM for each specific procurement. Consequently, the applicable data items and the degree of coordination activities will vary with the scope of the task.

While the tasks identified below are intended to be comprehensive relative to the scope of the NH&S-LEM's responsibilities, additional tasks may become apparent during the implementation of this plan. The LEM is responsible for assuring that these new tasks are planned and scheduled for each applicable procurement. The new tasks should be documented, this plan updated as applicable, and the appropriate information provided to the LSMI-LEM for updating the MIS and its information displays.



The following paragraphs describe the tasks to be performed. Table 6-1 (see paragraph 6.3) presents a task summary and indicates by the respective columns of the table the applicable data items, expected coordination required for the tasks, and a schedule relating tasks to major program events.

● Task 1

Assure that documentation for the hardness maintenance and hardness assurance activities are in consonance with the logistic efforts of the MX Program. The LEM will determine the status of Engineering Directive 77-4 and the applicable system specifications by direct liaison with NH&S engineering and the OPRs for the documents. Initial efforts under this task must be completed prior to RFP release since these documents form a part of the requirements package essential to MX Weapon System development.

● Task 2

Assure that NH&S inputs are provided for the development of logistic requirements for each CEI procurement. This task must also be completed prior to RFP release through review of the AFSC Forms 40 by NH&S engineering. These forms are reviewed to ascertain that the applicable data item descriptions (DIDs) have been tailored in scope (as applicable) for each hardware procurement. The NH&S-LEM coordinates with each PEO and with NH&S engineering to determine that the AFSC Forms 40 have been prepared, that system/equipment NH&S requirements have been developed, and that the SOW for each CEI contains this information.

● Task 3

Assure that CEI proposals are evaluated relative to hardness maintenance requirements, and to the requirement that the logistic impact of NH&S design considerations be identified to facilitate evaluation and documentation for feedback into the design tradeoff process. This task is performed as part of the proposal review and evaluation process. The LEM will coordinate with the PEO and NH&S engineering to determine that review criteria have been established, that each proposal addresses this element in accordance with the SOW, and that the degree of compliance of each contractor with the SOW has been determined.

● Task 4

Assure that contractor-developed NH&S program plan reviews include the adequacy of their approach to supporting logistic efforts. Through close liaison with NH&S engineering and each PEO, the NH&S-LEM tracks the review, evaluation, and implementation of each NH&S program plan prepared by an associate contractor. The LEM may inspect the results of plan reviews and evaluations to verify their adequacy. Any adverse effects NH&S may have on ILS must be identified as early as possible to ensure that corrective actions can be implemented for alleviating the situation.

● Task 5

Assure that Air Force and contractor-developed documentation for NH&S efforts are reviewed for their possible effects on logistics. Through close liaison with NH&S engineering, with M-, MP-, and R-LEMs, and with POs responsible for analyses such as design tradeoff studies, life cycle cost/design to cost (LCC/DTC) efforts, and optimum repair level analyses (ORLA) activities, the NH&S-LEM verifies that results of these efforts are reviewed/evaluated/approved.

Additionally, the NH&S-LEM is concerned with the results of design reviews/audits and tests/demonstrations with respect to their assessment of logistic impact. He also tracks the outputs from logistic support analyses to ensure that hardness maintenance requirements have been identified, and outputs from failure summaries for possible NH&S effects on logistics. Assurance must be provided that the subjects of hardness maintenance and hardness surveillance are adequately addressed in technical publications, training plans, and other relevant documentation with respect to logistic impact.

● Task 6

Assure that test planning analyses (TPAs) for NH&S adequately identify tests and test data requirements that support logistic efforts. Such planning includes both NH&S surveillance and nonsurveillance test requirements. The NH&S-LEM verifies that NH&S demonstration requirements affecting logistic support are incorporated into the integrated test plan (ITP), that these demonstration requirements have been delineated for each FSD contract, for the purpose of assuring that the NH&S parameters identified for demonstration support the ILS program.

A significant aspect of test planning is providing the compatibility of data from one program phase to the next. This compatibility must be achieved by early identification of the ground rules and analytical techniques to be utilized for data reduction throughout the program. The NH&S-LEM verifies that the TPA generates criteria for assuring data compatibility. He must also coordinate with NH&S engineering, the OPR for the ITP, each PEO, Air Force Test and Evaluation Center (AFTEC) representatives, appropriate LEMs, and the T&E PO as applicable in implementing this task. The NH&S-LEM will review/inspect documentation as necessary to ascertain that the pertinent requirements/criteria have been developed.

● Task 7

Assure that applicable LSAR data sheets reflecting NH&S information are prepared/evaluated and approved. This task results in the NH&S-LEM ensuring that contractor prepared LSAR data sheets containing NH&S information are reviewed, approved, and input into the LSAR data bank; and that in-house generated summaries of LSAR data are reviewed for trends impacting on NH&S. The NH&S-LEM coordinates with NH&S engineering, each PEO, and the M-, MP-, and R-LEM, as appropriate, in performing this task. Other LEMs may be involved in this effort if NH&S problems are uncovered.

● Task 8

Support the preparation/update of logistic documentation. The NH&S-LEM reviews/develops/updates information contained in or to be a part of MX Program documents. Guidance for the performance of this task will be provided by the DPML. The documents involved will be those developed by the Logistics Directorate, as well as by other organizations, that contain logistic information. This effort will require coordination with NH&S engineering, the OPRs for each document, and applicable LEMs involved in providing logistic inputs to the documentation.

● Task 9

Assure that contractor-prepared requests for deviations/waivers are evaluated for their potential impact on NH&S and subsequent influences on logistic support requirements. Contractors usually request deviations/waivers when a system/equipment requirement cannot be achieved for one or more technical reasons. The NH&S-LEM coordinates with NH&S engineering, each PEO, and appropriate LEMs to



verify that reviews have been performed, that impacts (if any) have been identified, and that LCC goals for weapon system support remain within acceptable limits.

● Task 10

Assure that contractor-developed engineering change proposals (ECPs) are reviewed for their effects on NH&S and for subsequent impact on logistic support requirements. The NH&S-LEM ascertains that all reviews and analysis efforts associated with NH&S that may impact on logistics have been performed. He coordinates with NH&S engineering, the appropriate PEO and LEMs for other logistic elements that may be affected by the ECP. Again, it will be necessary for the NH&S-LEM to inspect reports that document the review and analysis efforts to ascertain that an evaluation of logistic impact has been performed.

### 6.3 PREFACE TO TASK TABLE

Table 6-1 lists the tasks discussed in Section 6.2, together with the corresponding data items and coordination required in the performance of the tasks. The schedule shown in the table indicates the availability dates of data items relative to major program milestones. The NH&S-LEM will prepare a schedule for the completion of the tasks applicable to each hardware end item, using contract award dates as the basis for assigning calendar dates to each schedule.



TABLE 6-1. NH&S TASKS (Sheet 1 of 4)

Tasks	Applicable Data Items	Coordination	Milestone Schedule							
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release
1. Assure that documentation for the hardness maintenance and hardness assurance activities are in consonance with the logistic efforts of the MX Program.	1. System specifications 2. ED 77-4	NH&S engineering, OPR for the documents	△	△	△	△	△	△	△	△
2. Assure that NH&S inputs are provided for the development of logistic requirements for each CEI procurement.	1. ED 77-4 2. AFSC form 40	NH&S engineering Each PEO	△							
3. Assure that CEI proposals are evaluated relative to hardness maintenance requirements, and to the requirement that the logistic impact of NH&S design considerations be identified, to facilitate evaluation and documentation for feedback into the design tradeoff process.	1. Contractor proposals 2. SOW tasks	NH&S engineering Each PEO		△						
4. Assure that contractor-developed NH&S program plan reviews include the adequacy of their approach to supporting logistic efforts.	1. NH&S program plan 2. EMC plan						30D SDR △	30D PDR △	30D CDR △	
5. Assure that Air Force and contractor-developed documentation for NH&S efforts are reviewed for their possible effects on logistics. Subtasks include: a. Assure that the results of design and tradeoff analyses that affect hardness requirements also reflect logistic impact.	1. NH&S design report 2. System design trade study reports (B-3602) 3. LCC/DTC report 4. CI development specification (E-31024) 5. System design analysis (S-3551)	NH&S engineering, each PEO, R-, M-, and MP-LEMs					30D SDR △	30D PDR △	30D CDR △	

TABLE 6-1. NH&S TASKS (Sheet 2 of 4)

Tasks	Applicable Data Items	Coordination	Milestone Schedule							
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release
b. Assume that hardness maintenance requirements are included in the logistic support analysis data.	1. LSAR	NH&S engineering, each PEO	◆	◆	△	△	△	◆	◆	◆
c. Assume that the results of design reviews and audits are evaluated for NH&S impact on logistics.	1. Engineering data (E-7013, -7014, -7015) 2. CI development specification (E-3102A) 3. Reproducibility studies (S-3606)				△	△	△			
d. Assume that hardness qualification demonstration plans identify evaluation areas concerning NH&S impact on logistics.	1. Test reports (T-3718/M) 2. Environmental test plan (T-3708/M) 3. EMC test plan (T-3704) 4. EMC test reports (T-5155) 5. H.E. design approach (H-3261A) 1. Test report (T-5247)				△	△	△			
e. Assume that NH&S test results are evaluated for logistic impact.										
f. Assume that technical publications provide adequate information concerning hardness maintenance and surveillance.	1. CI fabrication spec (E-3103A) 2. SRA						△			
g. Assume that contractor prepared failure reports are evaluated for NH&S impact and subsequent effects on logistics.	1. Failure summary reports (R-3537A/M)						△			
h. Assume that training plans for operations and maintenance personnel adequately cover the subjects of hardness maintenance and surveillance.	1. ORLA (R-3549)						△			

TABLE 6-1. NH&S TASKS (Sheet 3 of 4)

Tasks	Applicable Data Items	Coordination	Milestone Schedule							
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release
<p>6. Assume that test planning analyses for NH&amp;S adequately identify tests and test data requirements that support logistic efforts. This task includes:</p> <p>a. Assume that NH&amp;S test demonstration requirements incorporated into the ITP reflect logistic support considerations.</p> <p>b. Assume that NH&amp;S test demonstration requirements identified for each FSD contract support the ILS program.</p> <p>c. Assume that quantitative and qualitative NH&amp;S parameters identified for assessment include those that impact on logistics.</p> <p>d. Assume that test data, evaluation criteria, etc., for NH&amp;S demonstrations that affect logistics are compatible between DT&amp;E/IOT&amp;E and FOT&amp;E efforts.</p> <p>7. Assume that applicable LSAR data sheets reflecting NH&amp;S information are prepared, evaluated, and approved. Subtasks include:</p> <p>a. Assume that LSAR data sheets A and B containing hardness maintenance information also address logistic support considerations.</p>	<p>1. SRA</p> <p>2. Qualification test reports (T-3718/M)</p> <p>3. NH&amp;S test reports (T-3718/M)</p> <p>4. EMC test report (T-5135)</p>	<p>NH&amp;S engineering; each PEO; R-, M-, and MP-LEMs; T&amp;E PO, AFTEC</p> <p>NH&amp;S engineering; each PEO; R-, M-, and MP-LEMs, as applicable</p>	◆	◆	◆	◆	◆	◆	◆	◆
<p>△ As specified by CDRL for each applicable item</p>										
<p>△ As specified by CDRL for each applicable item</p>										



TABLE 6-1. NH&S TASKS (Sheet 4 of 4)

Tasks	Applicable Data Items	Coordination	Milestone Schedule							
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release
b. Assume that contractor-submitted LSAR data sheets reflecting NH&S information are reviewed and forwarded to the approval authority for subsequent distribution and input into the LSAR data bank.	1. LSAR	NH&S engineering; each PEO; R-, M-, and MP-LEMs, as applicable								
c. Review in-house generated summary reports of LSAR data for trends impacting on NH&S.	1. Review criteria									
d. Support the preparation/update of logistic documentation.	1. ILSP	NH&S engineering; OPR for each document; applicable LEMs								
	2. Maintenance concept									
9. Assume that contractor-prepared requests for deviations/waivers are evaluated for their potential impact on NH&S and subsequent influences on logistic support requirements.	3. ITP	NH&S engineering; each PEO; applicable LEMs								
	4. NH&S LEM plan									
10. Assume that contractor-developed engineering change proposals are reviewed for their effects on NH&S and for subsequent impact on logistic support requirements.	1. Deviation/waiver request (E-3129M)	NH&S engineering; each PEO; applicable LEMs								
	2. ECPs (E-3128/M)									
	3. Specification maintenance document (E-3106/M)									

## APPENDIXES

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Appendix C: NH&S Interface Element Schedule . . . . .	C-1

# APPENDIX A

## MISSILE-X PROGRAM LOGISTIC ELEMENT MANAGER DIRECTORY Col. L.E. Eklund, DPML

Logistic Element	Manager	Code	Ext.	Room
Reliability Interface	Capt. T. M. Palmer	MNBR	5359	421
Maintainability Interface	Capt. A. D. Wadsworth	MNLE	4523	619
Nuclear Hardness and Survivability Interface	Capt. W. R. Jacobs	MNNH	7843	711
Maintenance Planning	Lt. Col. R. W. Ayars	MNLE	4523	619
Support Equipment	Lt. Col. B. W. Woolverton	MNNX	7005	138
Supply Support (Preoperational)	Mr. F. C. O'Conner	MNTD	6481	600
Supply Support (Operational)	Mr. J. A. Davidson	MNLM	5321	621
Transportation and Packaging	Mr. R. W. Riggs	MNTD	5474	600
Technical Data (Engineering)	Mr. L. E. Onstott	MNLM	5321	621
Technical Data (Technical Orders)	Maj. L. W. Cooper	MNTP	6684	609
Support Facilities	Mr. F. E. Longan	MNND	6891	408
Personnel and Training	Maj. L. W. Cooper	MNTP	6684	609
Logistic Support Resource Funds	Capt. H. B. Robbins	MNLA	5395	623
Logistic Support Management Information	Mr. J. L. Peterson	MNLA	5386	623



**APPENDIX B**  
**ACRONYMS AND ABBREVIATIONS**

<b>A&amp;CO</b>	<b>— Assembly and Checkout</b>
<b>ADP</b>	<b>— Automatic Data Processing</b>
<b>AFALD</b>	<b>— Air Force Acquisition Logistics Division</b>
<b>AFLC</b>	<b>— Air Force Logistics Command</b>
<b>AFSC</b>	<b>— Air Force Systems Command</b>
<b>AFTEC</b>	<b>— Air Force Test and Evaluation Center</b>
<b>BTWS</b>	<b>— Buried Trench Weapon System</b>
<b>C/A</b>	<b>— Contract Award</b>
<b>CDR</b>	<b>— Critical Design Review</b>
<b>CDRL</b>	<b>— Contract Data Requirements List</b>
<b>CDRS</b>	<b>— Contract Data Requirements Substantiation</b>
<b>CDSR</b>	<b>— Cost Data Summary Report</b>
<b>CEI</b>	<b>— Configuration End Item</b>
<b>CFSR</b>	<b>— Contract Funds Status Report</b>
<b>CPR</b>	<b>— Cost Performance Report</b>
<b>DPML</b>	<b>— Deputy Program Manager for Logistics</b>
<b>DT&amp;E</b>	<b>— Development Test and Evaluation</b>
<b>FCA</b>	<b>— Functional Configuration Audit</b>
<b>FCHR</b>	<b>— Functional Cost Hour Report</b>
<b>FMA</b>	<b>— Failure Mode Analysis</b>
<b>FSD</b>	<b>— Full Scale Development</b>
<b>ICBM</b>	<b>— Intercontinental Ballistic Missile</b>
<b>IOT&amp;E</b>	<b>— Initial Operational Test and Evaluation</b>
<b>ILS</b>	<b>— Integrated Logistic Support</b>
<b>ILSMT</b>	<b>— Integrated Logistic Support Management Team</b>
<b>ILSP</b>	<b>— Integrated Logistic Support Plan</b>
<b>ISP</b>	<b>— Integrated Support Plan</b>
<b>ITP</b>	<b>— Integrated Test Plan</b>
<b>LEM</b>	<b>— Logistic Element Manager</b>

**LSA** — Logistic Support Analysis  
**LSAR** — Logistic Support Analysis Record  
**MDR** — Missile Design Review  
**MIC** — Management Information Center  
**MIS** — Management Information System  
**MPP** — Maintainability Program Plan  
**MTBF** — Mean Time Between Failures  
**MTTR** — Mean Time to Repair  
**MX** — Missile-X  
**OPR** — Office of Primary Responsibility  
**OT&E** — Operational Test and Evaluation  
**PCA** — Physical Configuration Audit  
**PDR** — Preliminary Design Review  
**PEO** — Project Element Officer  
**PMP** — Program Management Plan  
**PO** — Project Officer  
**RPP** — Reliability Program Plan  
**SAMSO** — Space and Missile Systems Organization  
**SBWS** — Shelter Based Weapon System  
**SDR** — System Design Review  
**SOW** — Statement of Work  
**SRA** — System Requirements Analysis  
**T&E** — Test and Evaluation  
**TI** — Technical Interchange  
**TPA** — Test Planning Analysis

# APPENDIX C NH&S INTERFACE ELEMENT SCHEDULE

	Validation/ System Definition	Full Scale Development						Production/Deployment
Major Subsystem Milestones	C/A △	MDR △	SDR △	PDR △	CDR △	FCA △	Flight Tests △△MAP Tests →	IOC △
1. NH&S Program Plan		Initial △	△	△	△	△		
2. NH&S Design and Trade Study Reports		△	△	△	△	△		
3. NH&S Design Reports			△	△	△	△		
4. NH&S Logistic Reqmnts. Development			△	△	△	△		
5. NH&S Test Plans*				△	△	△		
6. NH&S Development Tests*				△	△	△		
7. NH&S Confirmation Tests*					△	△	△	
8. NH&S System Test*							△	
9. NH&S Test Reports*				△	△	△	△	
10. NH&S Progress Reports							△	
(Frequency TBD)								
*NH&S test plans, conduct, and reports to occur incrementally during the time period indicated.								